



(RESEARCH ARTICLE)



## MATHSANAY: School initiatives on bridging learners' numeracy gap: A proposed math literacy project

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### Abstract

This action research aims to determine the effectiveness of MATHSANAY Numeracy Project in bridging the numeracy gap and skills focusing on four fundamental operations in mathematics namely addition, subtraction, multiplication and division in among 49 identified non-numerate Grade 7 students of Bagbag National High School District of Rosario

The study used the purposive sampling procedure. Numeracy Test was given to identify the non-numerates from grade 7 entrants as subject of intervention activities which is one hour face-face tutorial session every 5<sup>th</sup> day of the week and supported practice drill cards in daily lesson. It was conducted during the whole period of first quarter using Dependent T-test of two sample means.

The pretest and posttest results were found “Highly Significant” where in the computed p-value is 0.00.with T value of -10.55. Moreover, the student-participants gained a notable improvement in their numeracy skills which moved its category from non-numerate group to moderately numerate group .Hence the utilization of MATHSANAY project is *effective* intervention in bridging the numeracy gap and skills which translated into a higher learning outcome of students and achievement in Mathematics.

**Keywords:** Mathsany: Numeracy Project: Numeracy Gap & Skills: Math Literacy: Four Fundamental Operations

### 1. Introduction

According to a study issued by a Netherlands-based research group, Filipinos performed the worst out of 58 countries in a Math and Science evaluation for Grade 4 students. The country placed 297 in math rank in TIMSS..

Over the years, it has been noticed by the teachers and administrators that there is an alarming problem in the mathematics performance level of the grade 7 students of Bagbag National High School. It is evident in the result of the National Achievement Test (NAT) and also in the teacher-made tests that there is a discrepancy between the expected grades and the actual test results. The school therefore devised a remediation program that will cater to the needs of the non-numerate students which is called MATHSANAY through intensive practice or “Pagsasanay”. Hence, this is where the “MATHSANAY” or “practice exercises in math” aspect of the name comes into play.

Anchored on BEDP 2030, the School Calendar and Activities for SY 2022-2023 shall addressing the remaining access gaps, focusing on remediation strategies and interventions as one of the key concepts of LRCP-Learning Recovery and Continuity Plan.(BEDP 2030 item No.23,24,25 , DO #34 S.2022 p.7)

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## 2. Material and methods

The numeracy skills are the basic foundation towards mathematical literacy mainly problem solving skills and critical thinking. The process could lead to sufficient practice exercises such as Learning Activity Sheets, Window Drill Cards and teacher-made Flashcards. The teacher-participants played vital role in the conduct of the study as coaches/facilitators.

To presents the numeracy test procedures the following guidelines are presented

- With Perfect Score in 4 sub-test = Categorized as Highly Numerates
- With only one(1) mistakes in 4 sub-test = Moderately Numerates
- Zero Score = Non-Numerates

This study used the purposive sampling procedure with 49 Grade 7 identified non-numerates the target of the intervention process. The researchers' teacher participants employed the 6 weeks intervention period every Friday Math-sanay with one-hour session using LAS combined with 5-minute "Math-sanay" drill (priming activity) in all

Pretest 01 02 03 04 05 06 Posttest

## 3. Results and discussion

Data analysis for this study was done with reference to the research questions and hypotheses already formulated.

### 3.1. Research Question 1

What is the pretest performance of student-participants (non-numerates) before the intervention MATHSANAY Project?

**Table 1** The Pretest Result of the Student Participants in before the MATHSANAY Project

MEAN	SD	MPS
9.92	2.8839	24.75

The table 1 showed the Mean, SD, MPS, of the student-participants in the pre-test. It can be manifested from the table that the 9.92 MEAN out of the 40-item test about numeracy skills of student-participants with 2.8839 SD and 24.75 MPS which is fairly low.

### 3.2. Research Question 2

What is the post-test performance of the Grade 7 student-participants after the MATHSANAY intervention?

**Table 2** The Posttest Result of the Student-Participants after MATHSANAY Intervention

MEAN	SD	MPS
20.96	5.9921	51.4

Table 2 posited the Mean, SD, MPS, of the student-participants in the post test after the intervention. It can be manifested from the table that they got the Mean of 20.96 which shows improvement from their pre-test. Also, it can be interpreted based from the MPS results of 51.40 their average scores were categorized as moderately non-numerates. It is supported by SD of 5.99

### 3.3. Research Question 3

3.3.1. How significant is the difference between the pre-test and post-test performance of the student-participants in MATHSANAY intervention?

Table 3 showed the comparative results of the mean and the variance for the pre and posttest of the 49 student-participants. The mean for pretest is 9.92 and 20.96 in the posttest. The variance for the pretest is approximately 8.58 while the posttest has approximately 37.04 variance.

**Table 3** Result of t-test of the same group in the pre and post tests

Paired Test	T value	P value	$\alpha$	Decision	Interpretation
Pretest And Posttest	-10.5505	0.00	0.05	Reject Ho	Significant

Since the computed p-value is 0.00 is less than 0.05, we have to reject the null hypothesis. It means that the average result of the posttest is greater than the pre-test. Hence, we can say that the Intervention in Bridging Numeracy Gap is *effective*. The study revealed substantial improvement in numeracy skills of students during the utilization of MATHSANAY a learning activities for intervention which translated into higher test scores in the posttest.

Based on the preceding findings, the MATHSANAY as proposed math literacy project bridged the learners Numeracy Gap with the used of teacher made designed numeracy tools which the later could serve as basis for CI- Project of the school. It could also important to note that out of 49 respondents, there were still 6 non- numerates remaining as reflected in *Form 2 Consolidated Summary of Students' Numeracy Profile*. Furthermore all grade 7 learners successfully completed the program and passed the mathematics subject for First Quarter SY 2022-2023.

Giving interventions or remediation to students during this post pandemic is extremely recommended because there is a higher chance for them to improve on their perceived shortcomings or deficiency and thus achieving academic progress and success.

The results shall be reflected in the quarterly School Data Gathering Tool which shall provide inputs on the school Based Management SBM level of practice as to Access, Governance and Quality.

## 4. Conclusion

Based on the preceding findings, the MATHSANAY as proposed math literacy project in bridging the Learners Numeracy Gap was found to be an extremely effective to be used by the school basis for CI- Project in the future of increasing the mathematics performance in the classroom and their achievement as well. It is also important to note that out of 49 respondents, there were still 6 non- numerates remaining as reflected in *Form 2 Consolidated Summary of Students' Numeracy Profile*. Furthermore all grade 7 learners successfully completed the program and passed the mathematics subject for First Quarter SY 2022-2023. Hence, through this intervention, the learners are able to master the fundamentals of G7 Mathematics which will be very useful in their high school Math endeavor.

Giving interventions or remediation to students during this post pandemic is extremely recommended because there is a higher chance for them to improve on their perceived shortcomings or deficiency and thus achieving academic progress and success.

## Compliance with ethical standards

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*Disclosure of conflict of interest*

This study is solely made by Mary Jane Torres Luna.

*Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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